IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Rolf SKOLD

Application No.: 09/381,828 Confirmation No.: 004478

Filed: November 24, 1999 Art Unit: 1743

For: THE CHARACTERISATION OF PHYSICAL AND CHEMICAL PROPERTIES OF A LIQUID AND A DEVICE THEREFOR Examiner: A. Soderquist

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

As required under § 41.37(a), this brief is filed with a Petition for Extension of Time and thus is timely filed (the Notice of Appeal was filed on January 31, 2007), and is in furtherance of said Notice of Appeal.

The fees required under § 41.20(b)(2) are set forth in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This Appeal Brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206:

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

Rolf SKOLD, the sole inventor and owner of all right and title in the claimed invention.

II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 18 claims pending in application.

B. Current Status of Claims

1. Claims canceled: none

2. Claims withdrawn from consideration but not canceled: none

3. Claims pending: 1-18

4. Claims allowed: 3 and 9

5. Claims rejected: 1, 2, 3-8, 10-18

C. Claims On Appeal

The claims on appeal are claims 1, 2, 3-8, 10-18 (as shown in the attached **Appendix A** starting on page 60).

IV. STATUS OF AMENDMENTS

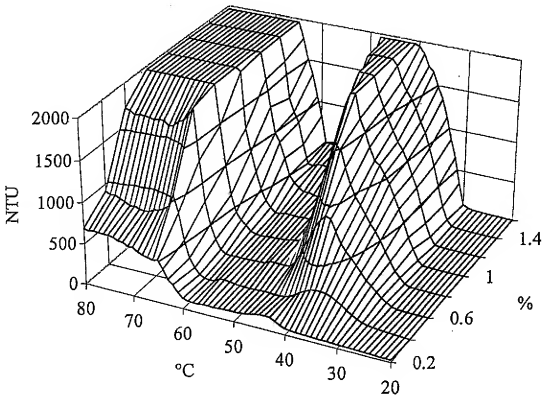
Appellant did not file an amendment subsequent to the final rejection.

Thus, all amendments/replies by Appellant have been entered into the record. The entered replies include the most recently filed replies by Appellant, which are (i) a "Letter Submitting Complete Copy of 132 Declaration" on August 25, 2006, and (ii) a "Reply to Non-Final Office Action under 37 C.F.R. § 1.111" filed on August 4, 2006. The Final Office Action issued on October 31, 2006.

V. SUMMARY OF CLAIMED SUBJECT MATTER

There are two independent claims on appeal. Independent claim 1 is directed to a method; independent claim 7 is directed to an apparatus.

As recited in independent claim 1, the present invention provides an automated method for the collection of data in electronic form for a three-dimensional diagram (i.e., phase diagrams) containing a dependent physical and/or chemical property of a liquid as a function of temperature and a component concentration (see the present specification at page 1, lines 4-8; see also page 3, lines 1-32 and Figure 2 showing the three-dimensional diagram). The temperature and a component concentration are independent variables. For instance, the following graphic is possible with the present invention (wherein this graphic is Figure 2 of the present specification):



The present invention enables the access of a large number of measuring points of physical or chemical properties of a liquid as a function of temperature and concentration of a component (see the specification at page 3, lines 10-27, and the paragraph bridging pages 5-6). The measured points are then compiled, and a three-dimensional picture (e.g., a phase diagram as shown in Figure 2) can be attained showing such physical/chemical properties of that liquid. This invention is good for, as one example, a biological sample that contains different types of liquids therein and the properties of the biological sample can be determined. In fact, several dependent physical and/or chemical properties (e.g., pH; turbidity; optical activity; etc.) can be simultaneously measured in the same cell at the same temperature and composition (see also the present specification at page 2, lines 1-3). The independent variables are varied in a predetermined fashion and at all desired measuring points one or several dependent variables are measured (see specification at page 2, lines 3-5).

(A) Claim 1

More specifically, the present invention as recited in claim 1 is directed to a method for the characterization of physical and/or chemical properties of a liquid (see the features of pending claim 1 and page 2, lines 6-25 of the specification), comprising the following steps:

1) at least one dependent physical and/or chemical property of a liquid is measured in a measuring cell as a function of temperature and a component concentration as independent variables,

2) the values for the component concentration in the measuring cell are determined by calculation, based on data from a control program for the change of component concentration

in a computer and the temperatures are determined by calculation from a temperature control program or by measurements;

3) the value of the component concentration in the measuring cell is changed by adding in one step or gradually a predetermined amount of another liquid containing a different component concentration into the measuring cell according to the control program for the change of the component concentration, and a representative number of measurements of the dependent physical or chemical property are performed in the measuring cell within the whole selected temperature range within the predetermined change of the component concentration,

4) the procedures above are repeated at desired component concentrations and temperatures in order to obtain a wanted number of values;

5) the values obtained for the dependent properties are combined with the values for the independent properties to measuring points; and

6) the measuring points electronically stored in the computer are coordinated and visualized in a three-dimensional diagram.

The component's concentration is an independent variable. As an example of what this means, a certain volume of the desired liquid is added and analyzed. Then, the same volume of the liquid can be added by, e.g., diluted with a solvent or water, such that a different concentration of the liquid is being subsequently analyzed (see the specification at page 3, lines 1-10).

Temperature is also an independent variable.

Again, as an example of the three-dimensional diagram, please refer to Figure 2 as reproduced above.

(B) Claim 7

Also, the present invention is directed to an apparatus as recited in independent claim 7 (see also the specification at page 4, lines 1-20 and Figure 1 displaying a schematic for the device). Specifically, the present invention (claim 7) is further directed to a device for the characterization of the physical and/or chemical properties of a liquid comprising components (a)-(c) (with subcomponents):

(a) a measuring cell (1) provided with

i) an equipment (2) for the homogenisation of a liquid,

ii) at least two control equipment (3, 17), which comprise or are attached to control programs for changing of the two independent variables, component concentration and temperature, in a predetermined manner, the control equipment (3) of the component concentration comprising a dosage organ for the addition of another liquid containing a different component concentration to the measuring cell,

iii) at least one measuring organ (9, 13, 14) for the determination of at least one dependent physical and/or chemical property of the liquid, and

iv) optionally a measuring organ (15) for the determination of the temperature,

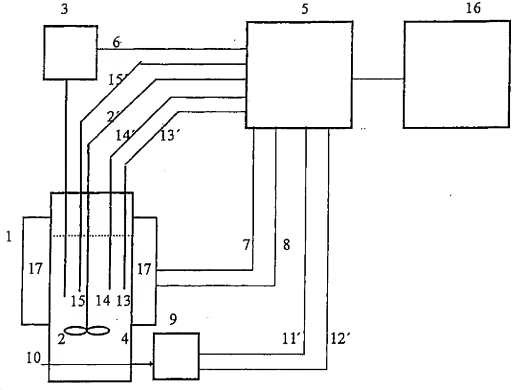
(b) at least one computer (5) for

i) the reception and storage of data relating to the dependent and independent variables via at least one electronic circuit (11', 12', 13', 14', 15') and the calculation of at least the component concentration from data obtained from the control program, and

ii) compilation of the received and calculated values into three-dimensional measuring points, and

(c) equipment (16) for visualization of the measuring points stored in the computer in a three-dimensional diagram.

For the Board's convenience, Appellant has reproduced Figure 1 below, which shows the measuring cell (**1**) with attached various dosage organs (**11, 12, 13, 14, 15**), control equipment (**3**), and the computer (**5**) connect to the equipment (**16**) (or display):



Thus, as claimed (claim 7), measurements are performed in one measuring cell (1) which is combined with two sets of control equipment (3, 17), which comprise or attach to the control programs for the change of temperature and component concentration (see the specification at page 2, lines 26-31; also Figure 1 and page 5, lines 3-18). Measuring organs (9, 13, 14, and optionally 15) for the determination of at least one physical and/or chemical property is also included within the device of claim 7, and the data is routed and visualized via the computer (5) and equipment (16) (see the specification at page 2, lines 26-31; see also Figure 1 reproduced above).

Again, each of concentration and temperature is an independent variable. As an example of what this means, a certain volume of the desired liquid is added and analyzed. Then, the same volume of the liquid can be added by, e.g., diluted with a solvent or water, such that a different concentration of the liquid is being subsequently analyzed (see the specification at page 3, lines 1-10).

(C) Dependent claims

Other embodiments of the present invention include:

- variations of device claim 7 (see pending claims 8 and 10 and the specification at page 4, lines 21-29);
- a program in the computer controlling the changes in concentration and/or temperature for method claim 1 (see pending claim 4 and the specification at page 2, lines 27-28);
- measurements conducted in view of the temperature parameter for method claim 1 (see pending claims 2 and 5 and the specification at page 3, lines 20-21);

- measurements conducted in view of the concentration component parameter for method claim 1 (see pending claim 6 and the specification at page 3, lines 11-17);
- the method of claim 1 involving a series of measurements being conducted under decreasing temperature, and the following series of measurements are done under rising temperatures (claim 11; see the specification at page 3, lines 24-27);
- the dependent physical and/or chemical property of the liquid that is measured in the measuring cell is pH, conductivity, turbidity, optical activity and/or viscosity (see claims 12, 13 and 17; see also the present specification in the paragraph bridging pages 5-6, especially page 5, lines 7 and 27 and page 6, lines 1-2, 7-8 and 21-22, and Figures 1-2, wherein Figure 2 shows turbidity);
- the concentration is gradually changed to change the value of the component concentration (claim 14; see the specification at page 3, lines 10-17);
- the temperature is continuously changed (see claims 15 and 16; see the specification at page 3, lines 24-25); and
- the concentration is gradually changed to change the value of the component concentration and the temperature is continuously changed (claim 18; see the specification at page 3, lines 10-17 and 24-27).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 2, 4-8, 10-12, 14-15 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over **Tondre** *et al.* (*J. Dispersion Science and Technology*, Vol. 7(5), pp. 581-597 (1986)) in view of **Rouse** *et al.* (*JAOCS*, Vol. 71, No. 1, pp. 37-42 (1995)) and **Dombay** *et al.* (*Proc. Conf. Colloid Chem. Mem.* (1988)), **Hagan** *et al.* (*Review of Scientific Instruments*, Vol. 58, pp. 468-474 (1987)), **Nitta** (*Fluid Phase Equilibria*, Vol. 53, pp. 105-1121(989)), **Streett** (*Pure and Applied Chemistry*, Vol. 61, pp. 143-152 (1989)) or **Yan** (*Analytica Chimica Acta*, Vol. 234, pp. 493-497 (1990)). (This is a total of at least 5 rejections).

Also, claims 12-13 and 16-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over **Tondre** *et al.* in view of **Rouse** *et al.* and **Dombay**, **Hagan** *et al.*, **Nitta**, **Streett** or **Yan** as applied to claims 1, 2, 4-8, 10-12, 14-15 and 18, and further in view of **Khomutov** *et al.* (*Carbohydrate Polymers*, Vol. 28, pp. 341-345 (1995)), **Ohno** *et al.* (*Macromolecules*, Vol. 18, pp. 1287-1291 (1985)) or **Subbaramaiah** (*Current Science*, Vol. 8, p. 360 (1939)). (This is a total of at least 15 rejections).

The above rejections are being appealed. Thus, whether claims 1, 2, 4-8 and 10-18 are patentable under 35 U.S.C. § 103(a) over the various cited combinations of references are the grounds of rejections being reviewed on appeal.

VII. ARGUMENT

In this Appeal Brief, Appellant has attempted to simplify the issues and accompanying arguments for the Board to consider. However, Appellant respectfully refers the Board to the Final Office Action and the history of this application, wherein it can be seen that the Examiner has provided a substantial amount of comments regarding numerous rejections in view of multiple combinations of references. Appellant has addressed these issues herein. Because of the length of this Appeal Brief, Appellant provides the following Table of Contents for the Board's convenience:

In summary, Appellant **(i)** does not concede that a *prima facie* case of obviousness has been established for any of the appealed rejections; and **(ii)** unexpected results and commercial success exist for the claimed invention.

Regarding **(i)**, U.S. case law holds that a proper obviousness inquiry requires consideration of three factors: (1) the prior art reference (or references when combined) must

teach or suggest all the claim limitations; (2) whether or not the prior art would have taught, motivated, or suggested to those of ordinary skill in the art that they should make the claimed invention (or practice the invention in case of a claimed method or process); and (3) whether the prior art establishes that in making the claimed invention (or practicing the invention in case of a claimed method or process), there would have been a reasonable expectation of success. *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991). Appellants respectfully submit that none, or not all, of these three requirements have been satisfied in order to establish a prima facie case of obviousness (as discussed in sections (A) and (B) below).

Regarding **(ii)**, Appellant has filed more than Declarations pursuant to 37 C.F.R. § 1.132 to show unexpected results as well as commercial success of the present invention. Consideration of this objective evidence is respectfully from the Board in view of the comments below (see section (C) below).

Specific arguments are set forth below.

(A) Claims 1, 2, 4-8, 10-18: None of the combinations of references for each ground(s) of rejection(s) disclose all claimed features

A *prima facie* case of obviousness for any of the rejections has not been established since there is no disclosure of all claimed features (one of the three requirements for a prima facie case of obviousness). *See In re Vaeck, supra*. Appellant respectfully submits that several features are not properly accounted for by the cited combinations of references. For instance, the instantly claimed feature of the measuring points in the computer are coordinated and visualized in a 3-dimensional diagram is not disclosed in the cited combinations of references (as explained in

more detail below). Appellant notes that the Examiner's assertion of automation is not novel (with reference to *In re Venner*,[1] 120 USPQ 192 (CCPA 1958)); see the last paragraph of the Final Office Action) is not applicable to the instant situation, since the present invention uses a control program for concentration, a control program for temperature, and then the various data is collected, stored and converted into, e.g., the three-dimensional diagram. Thus, it not simply an issue of "automation" considering the many features involved in the claimed invention. One of ordinary skill in the art would not know what or how to automate the cited combinations of references.

As another instance of failing to account for all claimed features, Appellant notes that step 2) in pending claim 1 recites "determining by calculation the values for the component concentration in the measuring cell based on data from a control program for the change of component concentration." The Examiner has not sufficiently accounted for this element given the cited combinations of references. Specifically, the control program for the change of component concentration is a software program that performs a specific function(s), and none of the cited references of Rouse, Dombay, etc., discloses such a feature. Further, Tondre as the primary reference does not make such a suggestion to use its "diluter programmer" to attain "the values obtained for the dependent properties are combined with the values for the independent properties to measuring points and stored electronically in a computer" as instantly claimed. Thus, a *prima facie* case of obviousness has not been established since the requisite disclosure of all claimed features is lacking. *See In re Vaeck; supra.*

[1] *In re Venner* is also improperly cited, as explained later in this Appeal Brief.

Also regarding step 2) of claim 1, Appellants note the claim language of ". . . determining the temperatures by calculation from a temperature control program . . .". Again, the Examiner has not sufficiently accounted for this element with the disclosure in the cited combinations of references. Specifically, the temperature control program in the present invention is a software program that performs a specific function(s), and disclosure of that software program with specific function is missing in any and all of the cited secondary references. Under *In re Vaeck, supra*, this rejection has been overcome.

Appellant also notes step 3) of pending claim 1, which is directed to changing the value of the component concentration based on a component concentration control program. This feature is missing in the cited combinations of disclosures.

Further, none of the cited combinations of references discloses at least the instantly claimed step 5) of "the values obtained for the dependent properties are combined with the values for the independent properties to measuring points and stored electronically in a computer". Step 5) of instantly pending claim 1 is essentially taking the values of the dependent property and combined with the independent variables (e.g.; concentration; temperature) by the computer.

In addition, the cited combinations of references do not disclose the instantly claimed feature of taking numerical measurements of properties of the liquid as a function of concentration and temperature.

Thus, a *prima facie* case of obviousness has not been established for any of the rejections since there is even no disclosure of all claimed features (which is one of the three requirements

for a *prima facie* case of obviousness). Appellant respectfully requests the honorable Board to reverse all rejections for this basis alone.

(B) Claims 1, 2, 4-8, 10-18: The requisite motivation and reasonable expectation of success are lacking for each ground(s) of rejection(s)

Appellant respectfully submits that one of ordinary skill in the art would lack the requisite motivation and/or reasonable expectation of success to achieve the present invention. *In re Vaeck; supra.*

Neither Tondre nor any of the cited secondary references discloses, recognizes, suggests or relates to the creation of any three-dimensional diagrams of the kind as instantly claimed in the present invention. This is a major deficiency of both references. Furthermore, the secondary references of Rouse, Dombay, etc., are inconsistent with the disclosure in the primary reference of Tondre since none of the secondary references even disclose the instantly claimed control programs.

Concerning the Examiner's reasons for combining these references, the following conclusion of obviousness is made in the Office Action (see page 6, last full paragraph of the Final Office Action):

> It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the computer of Rouse, Dombay or Hagan and use it to store the data of Tondre and produce three dimensional diagrams of the data as shown by Rouse, Dombay, Hagan, Nitta, Street or Yan because of the ability to map out an emulsion property, overcome the . . . as shown by Dombay, Hagan, Nitta, Street or Yan.

However, just combining Dombay and Hagan with the other secondary references (e.g., Tondre and Rouse) does not mean the combination of Tondre and Rouse itself is any more

proper. In particular, Appellant respectfully submits that one of ordinary skill in the art would not combine Tondre and Rouse, and further with the other secondary references, because the present invention is significantly different in aim, method and equipment versus that in Tondre, Rouse, and the other references of Dombay, Hagan, etc., as explained in more detail below. Throughout the Office Action, the Examiner asserts that Tondre discloses most claimed features except the automation of its method. However, Appellant notes that the assertion of automation as not being novel is not proper to the instant situation since the present invention uses a control program for concentration, a control program for temperature, and then the various data is collected, stored and converted into, e.g., a three-dimensional diagram (see Figure 2 reproduced above in the "Summary of Claimed Subject Matter" section). Additionally, the cited combinations of references do not disclose the use of the independent variables of temperature and concentration in combination with various dependent properties, and to further use such various date to attain, e.g., a three-dimensional diagram. Thus, it not a simple issue of automation, and citing *In re Venner*, considering the many features involved in the claimed invention.

Appellant now discuss the disclosure in each of the cited references, followed by the reasons why the skilled artisan would not combine such references. It is necessary to discuss each reference individually first since so many references are cited, and then afterwards point out how these rejections should be reversed as the disclosures of the various references are improperly combined.

(i) Tondre (the primary reference) (cited in both paragraphs 2 and 3 of the Office Action)

Tondre *et al.* are concerned with the study of a ternary system formulated with nonionic surfactants (see the Abstract on page 581). The goal of the cited Tondre reference is to design a set-up that facilitates or permits a fast determination for the findings of isotropic microemulsion phases of a liquid (see the Abstract on page 581). Previously, the Examiner has referred Appellant to how the Tondre device has a temperature programmer and controller, a diluter with a programmer and equipment for measuring the light transmission of the liquid. However, there are key differences between Tondre and the presently claimed invention (wherein Tondre being further combined with the other cited references is improper).

For one, the object and aim of Tondre is not to produce three-dimensional diagrams but to find solubilizing "horns" in diagrams (see page 583, "Experimental set-up" section, in the subsection "Principle"). The Tondre reference does describe developing an automatic device for the study of phase boundaries of component mixtures (see the Abstract on page 581), but the authors also states that it is probably unrealistic to dream of a method that could be applied to any mixtures of water, oil and tensioactive agents (see page 582, see the full second and third paragraphs). On the same page, last paragraph, Tondre *et al.* also state that they are not interested in using titration by one of the components at a fixed temperature, because of the low amount of information obtained (pages 594-595). These are key differences from the present invention as evident by reviewing the cited features of pending claim 1 or claim 7.

Also in the "experimental set up" section (see starting on page 583), Tondre describes an analogous diagram of temperature and the turbidity values are recorded (see Figure 3 on page

586). In fact, the transmission is only recorded in the form of analogous values on paper as a function of time (see Fig. 3 in Tondre). In this same Figure, the primary reference of Tondre shows that the temperature is shown as a function of time. These curves are then manually evaluated and the turbidity values indicating the upper and lower borders for clear solutions are then manually transferred to two-dimensional diagrams. "Figure 3 bis" on page 587 and "Figure 1 (a)-(c)" on page 584 of Tondre are examples of such diagrams. The Tondre method of producing the temperature curve is explained on page 587, last paragraph, which includes calculating a slope with a temperature rise of 10°C per hour. This slope is manually introduced since there is no disclosure in the Tondre reference whatsoever of a temperature recorder. Further, Figure 3 of Tondre shows no recording of the actual concentration but of the different additions that are manually indicated in Fig. 3 as "adduct" and "(a)," "(b)," etc., with manually calculated values. From the curves shown in Fig. 3, the actual temperature interval (wherein roughly 100% transmission existed) had to be manually estimated and combined with the manually calculated the water concentration. The result of this tidies operation is then manually plotted in a two-dimensional diagram showing the areas, wherein a clear phase exists (see "Figure 3 bis" on page 587).

Thus, in Tondre, the temperature and concentration are changed by control programs but the temperature and the concentration are not automatically calculated from the programs or by measurements in electronic (digital) form. Further, the device described in Tondre does not store the values of the turbidity and temperature in the computer. The data obtained by Tondre are recorded by a double trace (turbidity and temperature) analogue recorder on paper as a function of time. Turbidity is only measured in arbitrary units, since one is only concerned with clear and

not clear solutions (a subjective jugement). Regarding the temperature measurements, the zero offset and the slope correction device are adjusted (manually) so as to have a convenient temperature scale for direct reading (see page 585, first full paragraph; page 584, figure 2 and page 586, Figure 3). From Figure 3, page 586, it is also evident that the double trace recorder does not record the concentration on paper, but the concentrations are manually calculated from the settings of the diluter programmer (see especially the comments in the caption of Figure 3). From the above, it is obvious that the measurements of the variables and their coordination and presentation in Tondre exhibits fundamental differences in comparison with the present invention as defined in at least instantly pending claim 1.

Accordingly, one of ordinary skill in the art would understand that Tondre as a primary reference fails to disclose or suggest any automatic determination or measurement or any recording of the independent variables. Further, Tondre fails to disclose three-dimensional diagrams of the kind recited in the presently claimed invention. Additionally, the cited Tondre reference fails to disclose or teach the automatic collection of numerical data for use in the presentation of three-dimensional diagrams. Such deficiencies of the primary reference are further not (properly) accounted for in the secondary reference of Rouse, or in paragraphs 2 and 3 of the Final Office Action with reference to *In re Venner* or other publications.

In summary, Appellant notes the following key differences. As stated, the method of the present invention exhibits essential differences in comparison with the method described in Tondre. In contrast to Tondre, the dependent property is measured and recorded (see instantly pending claim 1, step 1)) in electronic (digital) form and directly combined with the corresponding electrical values for the independent variables, namely concentration and

temperature (see claim 1, step 5)). Further, in the present invention, the independent variables of temperature and concentration are determined in electric (digital) form by the data from their control programs. Temperature may also be determined by direct measurements in the present invention (see claim 1, step 2)). Also in the present invention, the data of the independent variables and the dependent property are, as said above, combined and stored electronically for all measuring points in a computer (see claim 1, step 5)), which cannot be said of Tondre. Further, in the present invention, the measuring points are thereafter coordinated and visualized as a three-dimensional diagram (see claim 1, step 6)), which also cannot be said of the Tondre *et al.* disclosure.

The Examiner has cited numerous secondary references to account for the deficiencies, and with hindsight reconstruction states that the asserted combinations of disclosures are proper. Appellant respectfully traverse, and request the Board to review the disclosures of the secondary references. The nine secondary references are discussed below in sections (ii)-(ix).

(ii) Rouse (paragraphs 2-3 of the Office Action)

Rouse relates to an automated titration system for generating data to construct phase diagrams related to microemulsions (see the Abstract). In the Rouse procedure, a microemulsion (a clear liquid) is first titrated with an oil until the sample turns cloudy (see Abstract). The sample is then dosed with a cosurfactant in quantity that is more than enough to clear the sample. The sample is again titrated with oil and the procedure continues until the sample is clear (or no longer clears up), when adding the cosurfactant (see Abstract). Thus, the additions of oil and cosurfactant are unpredictable. This is just one difference from what Appellant is claiming.

Another difference is how Rouse has to add another liquid until the sample clears up since the addition oil makes the sample cloudy. Such steps are not claimed, and the present claims (see claim 1) are directed to different method steps.

Further in Rouse, the values obtained are based on the concentration of the surfactant in the original sample. In order to obtain new values, new samples with another concentration of the surfactant have to be prepared and the whole process for collecting data has to be repeated. Each sample is provided with an individual set-up and operating instructions (which is also not the present invention). Furthermore, the different samples are handled by a sample change unit, using up to 16 samples, and a sample lift station (which is also not the present invention).

As previously pointed out by Appellant (see, e.g., the Supplemental Appeal Brief of March 3, 2005, the chart on pages 69-70), Rouse fails to disclose many features of the claimed invention (e.g., Rouse fails to disclose the claimed numerical measurement of property as a function of concentration and temperature). Further, all diagrams in the Rouse reference merely show concentrations as variables with an arbitrarily chosen critical transmittance value. The arbitrary nature of the Rouse embodiment makes this reference inconsistent with the present invention as well. Even the diagrams of Rouse are different from the present invention since the measurements in Rouse are all made at a fixed temperature, which means that temperature is not even considered a variable. Appellant further submits that the diagrams in Rouse are not produced by a computer, but are instead plotted manually. Thus, Rouse fails to account for the deficiencies of Tondre and one of ordinary skill in the art would not combine these disclosures in an effort to achieve what is instantly claimed.

The cited Dombay reference is also deficient in its disclosure and improperly combined with Tondre and/or Rouse.

(iii) Dombay (paragraphs 2-3 of the Office Action)

The cited secondary reference of Dombay discloses a method of analyzing the stability of emulsion by photometric analogous measurements of the turbidity over time (see, e.g., page 107, first paragraph). In the Dombay method, the emulsions are manually prepared.

After the analysis, the sample is replaced with a new sample with a different concentration. Each sample is manually prepared and manually placed in the analytical device. The concentration values of the different samples and the curves for each individual sample are manually combined (see Figure 1 on page 107) and then recorded and represented in three-dimensional diagrams of the type shown in Figure 2 (page 108) and Figure 3 (page 109).

As one of ordinary skill in the art would understand, the Dombay method, including its own collection of data, is not performed in the same manner as in the present invention. This because the Dombay samples are prepared manually and further registered manually. Additionally, the other independent variable in Dombay is time, and not temperature as instantly claimed.

As can be seen so far just from reviewing the disclosures of Tondre, Rouse and Dombay, the Examiner is taking bits and pieces of each secondary reference without accounting for such inconsistent disclosures.

(iv) Hagan (paragraphs 2-3 of the Office Action)

The cited Hagan reference is also deficient in its disclosure and is improperly combined with Tondre and Rouse (Hagan is cited in the alternative to Dombay).

The Hagan *et al.* reference relates to a software-controlled electrochemical system (see the Abstract on page 468). The system is designed for the characterization of a metallic surface (see Abstract and page 468, left column, second paragraph in the "Introduction" section). Thus, the aim is completely different from the one in the present invention and the system and its use have few things in common with the method and device of the present invention. In other words, Hagan is not even in an analogous art with the present invention. *See In re Oetiker*, 24 USPQ2d 1443, 1446 (Fed. Cir. 1992) (citing *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 678-79, 7 USPQ2d 1315, 1318 (Fed. Cir. 1988).

Hagan also states that for the time-dependent processes at the surface of an electrode, it is of interest to record the small fluctuations in the current occurring in short periods of time (page 468, right column, second paragraph under the "Background" section). General readings are of interest for up to several minutes, but the readings of the first seconds are often of the greatest value (see last sentence of the second paragraph under the "Background" section, right column, page 468). Hagan performs, for example, voltage sweeps in millivolts per seconds (see, e.g., page 468, right column, second paragraph under the "Background" section). Thus, Figure 4 on page 471 of Hagan shows a potentiodynamic polarization curve of a nickel surface in 2N H_2SO_4 as a result of such a voltage sweep.

Furthermore, in Figure 5 (page 472), the Hagan reference discloses the measurements of two curves, wherein one measurement is for current density and the other is for charge density.

Figure 5 of Hagan is generated for "metglass MBF65 in 1N H_2SO_4 for an anodic potential step of 0.7 V" as a function of time (see page 471, right column, bottom paragraph). For each new analyze, the metallic surface and the electrolyte have to be changed manually. Once the data sets are recorded on disk and the curves plotted on paper for reference they may be transferred to the IBM PC for further analysis (page 472, left column, first paragraph). Finally, Hagan states that for displaying a number of data sets on the same page or screen, a three-dimensional plot is often helpful (see, e.g., the paragraph bridging the left and columns and Figure 12 on page 474).

From the above it is evident that Hagan does not disclose or relate to a method for automatic measurements of a dependent property as a function of the independent variables of concentration and temperature. In fact, *the diagrams in Hagan lack both temperature and concentration as independent variables*. Thus, the Examiner is taking bits and pieces of each secondary reference without accounting for such inconsistent disclosures. The Examiner appears to want to use just the three-dimensional disclosure in Hagan (see page 6, last paragraph of the outstanding Office Action), but does not address how a completely different method and ingredients are used in Hagan versus Tondre and/or versus what is being claimed. Further, Appellant notes how the Hagan system is designed for the characterization of a metallic surface and is therefore not in analogous art (like Dombay) with the present invention due to a completely different aim and method versus the present invention. *In re Oetiker*; *supra*. As stated in *Oetiker*, the combination of elements from non-analogous sources, in a manner that reconstructs the Appellant's invention only with the benefit of hindsight, is insufficient to present a *prima facie* case of obviousness.

(v) Nitta (paragraphs 2-3 of the Office Action)

Nitta presents theoretical methods for the calculation of phase diagrams. More precisely, Nitta describes the theoretical calculation of phase equilibrium and critical points and the displaying of PTX phase diagrams.

Nitta does not disclose any information regarding the method of collecting data and the equipment therefore. This is a major deficiency of Niita, wherein the present invention is not concerned with PTX diagrams and pressure as a independent variable.

(vi) Streett (paragraphs 2-3 of the Office Action)

Streett is also concerned with pressure-temperature-composition (PTX) phase diagrams and provides and discusses several important classes of such systems.

Streett is not concerned with three-dimensional systems in accordance with the present invention and is improperly cited. Further there is no description in Streett of a method or a device for the collection of data.

(vii) Yan (paragraph 2-3 of the Office Action)

Yan describes the theoretical background for multivariate functions and discloses that such multivariate functions can be processed in the QQN series software, which contains millions of models.

Yan does not disclose any method or device for collecting data. Therefore, the disclosure of Yan is by no means affecting the patentability of the present invention, and its combination with the other references is improper.

(viii) Khomutov (paragraph 3 of the Office Action)

Khomutov discloses the manual preparation of gelatin-starch-water systems and the measurements of the turbidity at the required experimental temperature. Also viscosity measurements were made at a constant shear stress of 4 Pa and other parameters are measured for the preparation of two-dimensional diagrams.

Khomutov does not disclose any method or device in accordance with the present invention.

(ix) Ohno (paragraph 3 of the Office Action)

Ohno discloses that an alternating copolymer of maleic acid and perdeuteriostyrene was subjected to the pH-induced conformational transition from the compact to extended coil form and that the transition was followed and supported by pH, optical, viscometric and H NMR measurements. The data obtained are used for the construction of two-dimensional diagram.

Ohno does not disclose any method or device related to the present invention.

(x) Subbaramaiah (paragraph 3 of the Office Action)

Appellant has not received any reference in the name of "Subbaramaiah." Further, Appellant's representative has left a voicemail message in late 2006 to the Examiner indicated that Appellant has not received this reference, nor is this reference available on the USPTO PAIR system. It is noted that no contents of the present application/file wrapper are available on the PAIR system. Appellant are still waiting to hear from the Examiner.

Regarding the reference by "Subba" (if this reference was suppose to be cited), this reference discloses that an ultra-microscopic examination revealed that the rod-like particles of colloidal stearic acid changed to spherical ones on heating and resumed their original shape when cooled.

The Subba reference does not disclose (essential) information related to a method or a device suitable for the automatic production of three-phase diagrams.

(xi) The secondary references of paragraphs 2 and 3 of the Office Action

Thus, Nitta, Streett and Yan disclose PCT phase diagrams or multivariate functions from a theoretical point of view, but each of the references fails to describe any methods or devices suitable for collecting any data to be included in such diagrams or functions. Therefore, it is evident (as one of skill in the art understands) that none of these references discloses any one of the essential features of the present invention as defined in the claims. Again, the claimed feature of the measuring points in the computer are coordinated and visualized in a three-dimensional diagram is not disclosed in the cited combinations of references. Further, the assertion of automation (and citing *In re Venner*) not being novel is not applicable to the instant situation since the present invention uses a control program for concentration, a control program for temperature, and then the various data is collected, stored and converted into, e.g., the three-dimensional diagram.

Furthermore, lengthy disclosures of each of secondary references of Niita, Streett, Yan, Khomutov, Ohno and Subbaramaiah are repeated verbatim in paragraphs 2 and 3 of the Final Office Action. However, the disclosures of Niita, Streett, Yan, Khomutov, Ohno and

Subbaramaiah are reproduced without specifying the technical features which are believed pertinent in the judgement of patentability of the present invention as defined in the instant claims. For instance, Appellant respectfully refers the Board to page 5, lines 10-30 and page 6, lines 16. Then, conclusions of obviousness are found in the Office Action at page 6, last paragraph (lines 17-29)) and page 8, lines 9-13 (for each set of rejections stated in paragraphs 2 and 3, respectively). The Examiner appears to refer to "three dimensional diagrams of the data" when referring to these references (page 6, line 19 of the Final Office Action), but the Examiner has failed to clarify as to what specific disclosure is relied upon, and/or as to how the different methods and apparatuses of each reference is compatible with all other disclosures of the various references. In other words, the Examiner is taking bits and pieces of each secondary reference without accounting for such inconsistent disclosures between such reference, and without a clear basis for combining the references.

(xii) Specific reasons as to why requisite motivation and reasonable expectation of success are lacking

In citing so many references, there are many features of the present invention, wherein the skilled artisan would have to consider a multitude of factors to achieve what is claimed. Appellant notes the Examiner's reliance on *In re Gorman* in the paragraph bridging pages 9-10 of the Office Action. Appellant agrees that numerous references can be cited and combined to form a rejection under 35 U.S.C. § 103(a). However, as mentioned, the lengthy disclosures of each of secondary references are repeated verbatim in paragraphs 2 and 3 of the Final Office Action, but the disclosures of Niita, Streett, Yan, Khomutov, Ohno and Subbaramaiah are

reproduced without specifying the technical features which are believed pertinent in the judgement of patentability of the present invention as defined in the instant claims.

In this regard, Appellant notes M.P.E.P. § 2143.01(III) and *In re Mills*:

> The mere fact that references **can** be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references).

Furthermore, Appellant respectfully submits that the Examiner's position of automation loses the proper focus on what the references really disclose or teach (e.g., Rouse uses additions of oil and cosurfactant (to attain a solution that eventually becomes clear) that are essentially unpredictable in nature; the diagrams in Hagan lack both temperature and concentration as independent variables; etc.).

In addition, regarding the Examiner's reliance on *In re Venner* (see the Final Office Action at page 6, last paragraph), Appellant notes M.P.E.P. § 2144.04(III) discussing this case:

> *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958) (Appellant argued that claims to a permanent mold casting apparatus for molding trunk pistons were allowable over the prior art because the claimed invention combined "old permanent-mold structures together with a timer and solenoid which automatically actuates the known pressure valve system to release the inner core after a predetermined time has elapsed." The court held that **broadly** providing an automatic or mechanical means to replace **a** manual activity which accomplished the **same result** is not sufficient to distinguish over the prior art.).

(Appellant's emphasis added). One of ordinary skill in the art cannot broadly apply an automated means to the Tondre method since Tondre fails to disclose, *inter alia*, any recording of the independent variables; three-dimensional diagrams of the kind recited in the presently claimed invention (only two-dimensional diagrams depicted in the reference). Also in Tondre, the authors state that it probably is unrealistic to dream of a method that could be applied to any mixtures of water, oil and tensioactive agents (see page 582, see the full second and third paragraphs), etc. Further, one of ordinary skill in the art cannot broadly apply an automated means to the Tondre method by using the Rouse disclosure since the Rouse sample is dosed with a cosurfactant in quantity that is more than enough to clear the sample, wherein the additions of oil and cosurfactant are unpredictable. References like Dombay and Hagan are not even in an analogous art, and use different ingredient with different methods steps for different objectives.

Furthermore, one of ordinary skill in the art would not be replacing just one manual activity (see quote from M.P.E.P. § 2144.04(III) above), and the same result is not being accomplished by such asserted automation. As mentioned, the present invention enables the access of a large number of measuring points of physical or chemical properties of a liquid as a function of temperature and concentration of a component. The measured points are then compiled, and a three-dimensional picture can be attained showing such physical/chemical properties of that liquid. This invention is good for, as one example, a biological sample that contains different types of liquids therein and the properties of the biological sample can be determined. In fact, several dependent physical and/or chemical properties (e.g., pH; turbidity; optical activity; etc.) can be simultaneously measured in the same cell at the same temperature and composition. The independent variables are varied in a predetermined fashion and at all

desired measuring points one or several dependent variables are measured. Therefore, there are multiple manual activities versus what is disclosed in Tondre and the other references, and there is no "same result" achieved in the Tondre method (or that of the asserted combined disclosures of the references).

In fact, Appellant note a teaching away present in the primary reference and the first cited secondary reference. On page 582 of Tondre, last sentence, it is pointed out that the use of a simple titration by one of the components at a fixed temperature is not a good choice. Further, the cited Rouse reference represents such a simple titration process performed at a fixed temperature. For a person skilled in the art it would not be obvious to combine the two disclosures in an attempt to achieve what is instantly claimed. Appellant notes that any cited reference used for a rejection under 35 U.S.C. § 103(a) must be considered in is entirety, i.e., as a whole, including those portions that would lead away from a claimed invention. *See W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). In other words, the Tondre reference must be read in its entirety, including the teaching away that the use of a simple titration by one of the components at a fixed temperature is not a good choice.

Thus, a *prima facie* case of obviousness has not been established for any of the appealed rejections since there is no disclosure of all claimed features, the requisite motivation and/or the requisite reasonable expectation of success are lacking. *In re Vaeck, supra.* This is because, at the very least, the Rouse, Dombay, Hagan, Nitta, Streett and Yan references are inconsistent with the disclosure in the primary reference of Tondre, as well as each other, since none of the secondary references even disclose the instantly claimed control programs. There are many

features of the present invention, wherein the skilled artisan would have to consider a multitude of factors to achieve what is claimed.

Further, Tondre as the primary reference does not make such a suggestion to use the its "diluter programmer" to attain "the values obtained for the dependent properties are combined with the values for the independent properties to measuring points and stored electronically in a computer" as instantly claimed.

Additionally, one of ordinary skill in the art would not combine Tondre and Rouse, and further with Dombay and Hagan, Nitta, Streett or Yan, or any combination of thereof, because the present invention is significantly different in aim, method and equipment versus that in Tondre, Rouse, Dombay, etc. Just the differences in aim and methodology should warrant a finding that the references are improperly combined.

For instance, though Tondre is cited as the primary reference as disclosing data storage and the other references are used to disclose use of a computer and production of three-dimensional diagrams, the skilled artisan would not refer to, *e.g.*, Rouse because the Rouse reference uses additions of oil and cosurfactant (to attain a solution that eventually becomes clear) that are essentially unpredictable in nature. In addition, the diagrams in Rouse are not produced by a computer, but are instead plotted manually. Thus, it is inaccurate to assert that Rouse is being used to disclose automation (as stated at page 3, first full paragraph of the Office Action). Further, all diagrams in the Rouse reference merely show concentrations as variables with an arbitrarily chosen critical transmittance value. This is another critical difference such that the skilled artisan would not combine Tondre with Rouse. Any further combination of Tondre and Rouse with either Dombay or Hagan does not make the instant rejection(s) as proper.

As another example wherein the requisite motivation is lacking, despite any disclosure in Tondre (or Rouse or Hagan or any other cited reference), the skilled artisan would not refer to Dombay because the emulsions in its methods are manually prepared. Dombay does not even disclose the claimed independent variables. Further, Dombay fails to disclose step 2) of pending claim 1, which is "determining by calculation the values for the component concentration in the measuring cell based on data from a control program for the change of component concentration."

In addition, the skilled artisan would not refer to Hagan because this secondary reference teaches the characterization of a metallic surface and is therefore not in analogous art with the present invention due to a completely different aim and method versus the present invention. Further, the Hagan reference does not disclose or relate to a method for automatic measurements of a dependent property as a function of the independent variables of concentration and temperature. Even the diagrams in Hagan lack both temperature and concentration as independent variables (see, e.g., Figure 5). In addition, Hagan does not even disclose step 2) of pending claim 1, which is "determining by calculation the values for the component concentration in the measuring cell based on data from a control program for the change of component concentration."

Appellant respectfully request consideration as to how none of the references discussed in the Final Office Action has the same object or aim as the present invention. In fact, during the many and extensive novelty searches made by the Examiner, there is one reference, namely

Franchini,[2] that describes a method of producing three-dimensional diagrams of the same type as in the present invention (the Franchini reference is no longer relied upon by the Examiner). The method described in Franchini is manual and also the process steps as such differ from the present invention. Franchini also states that the manual process is very time-consuming. From Franchini it is evident that the need of an improved method existed and had existing for a long time, but nevertheless the numerous searches performed by the Examiner has not revealed any reference that has tried to solve the problem of the present invention.

The main references in the 2006 Final Office Action are Tondre and Rouse since Tondre is the primary reference and Rouse is cited in all rejections. These references themselves do not teach or suggest the present invention in any way.

First, the object and aim of Tondre is not to produce three-dimensional diagrams but to find solubilizing "horns" in diagrams. It should be observed that according to Tondre it is a need for developing automatic device for the study of phase boundaries of component mixtures, but the authors also states that it probably is unrealistic to dream of a method that could be applied to any mixtures of water, oil and tensioactive agents (see page 582, paragraphs 2 and 3). On the same page, last paragraph, Tondre also states that he is not interested in using titration by one of the components at a fix temperature, because of the low amount of information obtained. From the above it is evident that both Tondre (and Franchini) have a need for improved methods but no one has a solution of the need.

The secondary reference of Rouse relates to "dual autotitration" method having the variables water, oil, surfactant and cosurfactant, where titration is performed with oil and a

[2] G. Franchini *et al., J. Chem. Soc., Faraday Trans.*, 1, 85, pp. 1697-1707. Franchini was first cited in the

cosurfactant. Thus, in the diagram of Rouse the temperature is not a variable. This is a key difference from the present invention. Further, during the titration only the transition point is registered as a function of the concentrates. No care is taken to whether the sample is clear or cloudy (see page 38, lines 4-2 from bottom of Rouse). In order to be able to vary the amount of surfactant in a sample, Rouse discloses the use of a specific sample changer unit and a lift station. This is a complicated arrangement in order to obtain an autotitration and such an arrangement, which follows the manual principals in Franchini, is avoided in the present invention. These are more key differences from the present invention. Thus, it is evident that Rouse does not disclose an automated method and device for the creation of a three-dimensional diagram of the type claimed in the present invention. Once more, Appellant respectfully points out that there is no statement in Rouse that the diagrams shown are produced by a computer. Therefore, it is logical to suppose that the diagrams were manual produced. The limited amount of data in the diagrams and their design strongly support that opinion. It is not a good argument for obviousness to allege that the diagrams "could" have been produced by a computer (see page 6, last paragraph of the Office Action).

Furthermore, it is essential to notice that the diagrams in the present invention are of a different type and show a physical or chemical property as a function of temperature and concentration. The method of claim 1 and the device of claim 7 show large and fundamental differences in comparison with the disclosure of Rouse as well as from Tondre. Appellant respectfully refers the Board to how Tondre and Rouse are used in the outstanding Office Action as stated at pages 2-4.

Office Action of January 18, 2002, Paper No. 10 (see the Examiner's PTO-892 form).

From what has been said above, it is evident that it would not have been obvious for one of ordinary skill in the art to try to combine Tondre and Rouse, along with numerous other secondary references, since they refers to different objects and aims from the claimed invention (whether the method of claim or the apparatus of claim 7). As a matter of fact, Tondre advises against using titration methods performed. A person skilled in the art would also be hampered by the fact that Tondre expresses doubts about success. However, even if Tombre and Rouse are, *arguendo*, somehow combined, it is still not possible to combine them in such a manner that the claimed objects of the present invention are obtained. The invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem(s) it solves. *In re Wrig*ht, 6 USPQ2d 1959, 1962 (Fed. Cir. 1988) ("The problem solved by the invention is always relevant. The entirety of a claimed invention, including the combination viewed as a whole, the elements thereof, and the properties and purpose of the invention, must be considered"); *In re Sponnoble*, 160 USPQ 237 (CCPA 1969).

The references found during the numerous searches have arguably shown a well-known need for improved methods in order to create three-dimensional diagrams, which show a chemical or physical property in a solution as a function of concentration and temperature. However, the searches have failed to find any reference concerned with the object and aim of the present invention. Further, not even one combination of these references has been found that describes the claimed objects. Moreover, the combination suggested by the Examiner is not in accordance with the teachings of the references, but based on his knowledge of the present invention. Therefore, Appellant respectfully submits that Examiner has failed to establish a

prima facie case of obviousness. The invention as claimed exhibits inventive step with an improved result over the cited several combinations of references.

As a "back-up" position, the Examiner cites *In re Venner* (see the Office Action at page 6, last paragraph). But as stated above, Appellant notes the Examiner's reliance on *In re Venner* is improper since there are multiple manual activities that would have to be "broadly" automated, and there is no "same result" as that of the present invention based on the disclosures of the cited references. Appellant notes the passage from M.P.E.P. § 2144.04(III) above.

(xiii) Burden has not shifted to Appellant; Examiner's "Obvious to try" rationale; confusing with the level of skill in the art

The Examiner's premise for all rejections can be summarized as follows. Tondre discloses many features of the claims; the secondary references teach using computers and diagrams; the disclosures of all references can be combined, wherein replacing a manual activity with automation is acceptable as shown in the secondary reference(s) or under *In re Venner*. However, the initial burden of establishing a *prima facie* case of obviousness lies with the examiner. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). This burden has not been satisfied.

First, the Examiner states that it would be obvious to replace automate the Tondre method because "of the advantages of computing power" (page 6, last paragraph of the Final Office Action). This is an oversimplification of the problems associated in the art. Further, Appellant respectfully submit that this is the classical "obvious to try" argument as to why the

claimed invention would have been obvious to those of ordinary skill in the art. "An invention is 'obvious to try 'where the prior art [gives] either no indication of which parameters [are] critical or no direction as to which of many possible choices is likely to be successful.'" *See Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843, 1845 (Fed. Cir. 1989) (citing *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988)).

Also, the Examiner recognizes that the Tondre method is known in the art and, therefore, the next logical step is automate the method. However, Appellant finds that the Examiner is confusing the level of skill in the art with the teachings of the prior art. *In re Kratz*, 592 F.2d 1169, 1175, 201 USPQ 71, 76 (CCPA 1979)("[T]here is a difference between somehow substituting skill in the art for statutory prior art, as the PTO attempts to do here, and using that skill to interpret the prior art"); *see also Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999) (the level of skill in the art cannot be relied upon to provide the suggestion to combine references); see also M.P.E.P. § 2143.01. Accordingly, Appellant respectfully submit that the Examiner has not met the burden of proving unpatentability.

(xiv) Non-analogous art improperly cited

Appellant also submit that the rejection citing Hagan (in combination with Dombay and Rouse, and any other secondary reference) is overcome for an additional reason. Appellant respectfully refer the Examiner to *In re Oetiker*, wherein the Federal Circuit stated:

> We have reminded ourselves and the PTO that it is necessary to consider "the reality of the circumstances", *In re Wood*, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979) -- in other words, common sense -- in deciding in which fields a person of ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor. It has not been shown that a person of ordinary skill, seeking to solve a problem of fastening a hose clamp, would

> reasonably be expected or motivated to look to fasteners for garments. The combination of elements from non-analogous sources, in a manner that reconstructs the Appellant's invention only with the benefit of hindsight, is insufficient to present a prima facie case of obviousness. There must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge can not come from the Appellant's invention itself.

24 USPQ2d 1443, 1446 (Fed. Cir. 1992) (citing *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 678-79, 7 USPQ2d 1315, 1318 (Fed. Cir. 1988); *In re Geiger*, 815 F.2d 686, 687, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987); *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1147, 227 USPQ 543, 551 (Fed. Cir. 1985). Here, Appellant respectfully submits that it has not been established as to how one of ordinary skill in this art would reasonably expect to be successful or be motivated in referring to a reference directed to characterization of a metal surface (e.g., Hagan) in order to solve the problems as described by the Examiner (e.g., ability to map out an emulsion property). Hagan is not in an art that is analogous to Tondre or with the present invention. Thus, Appellant respectfully submits that a *prima facie* case of obviousness has not been established with respect to any rejection citing Hagan since not all requirements for a *prima facie* case of obviousness have been satisfied, including the requisite motivation and reasonable expectation of success.

(xv) Changing principle of operation or rendering reference unsatisfactory for intended purpose

Appellant submits that the present invention cannot be achieved by combining Tondre, Rouse and Dombay (one of the outstanding rejections stated in the Office Action). This is because it is not even clear how a three-dimensional diagram can be produced given how

Dombay describes time as an independent variable, and not temperature as instantly claimed. Appellant note that a claimed combination cannot change the principle of operation of the reference or render the reference inoperable for its intended purpose. *See* M.P.E.P. §§ 2143.01 (see sections entitled "The Proposed Modification Cannot Render the Prior Art Unsatisfactory For Its Intended Purpose" and "The Proposed Modification Cannot Change the Principle of Operation of a Reference") and M.P.E.P. § 2145(III). Further, As the Federal Circuit has held:

> "If references taken in combination would produce a 'seemingly inoperative device,' we have held that such references teach away from the combination and thus cannot serve as predicates for a *prima facie* case of obviousness." *See McGinley v. Franklin Sports Inc.*, 60 USPQ2d 1001, 1010 (CAFC 2001)(citing *In re Sponnoble*, 405 F.2d 578, 587, 160 USPQ 237, 244 (CCPA 1969) (references teach away from combination if combination produces seemingly inoperative device) and *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (inoperable modification teaches away)).

In this regard, using the independent variable of time of Dombay, coupled with the Tondre description regarding data storage, still does not achieve steps 5) and 6) of pending claim 1. If anything, the skilled artisan would have to subtract the Dombay independent time variable, which would change the principle of operation of the Dombay reference or render the Dombay reference inoperable for its intended purpose. Thus, the combination with Dombay and Tondre is improper, and citing Rouse and/or Hagan does not make the first combination any more proper.

Further, in the present invention, the values of temperature, concentration and the dependent property are measured directly in digital form and these values can directly be transformed to three-dimensional diagrams by the computer. However, this means that Tondre and Dombay cannot be combined in such a manner that the present method is obtained since the data in Dombay are partly analogous and partly handled manually. This is besides how Tondre

itself also does not perform any automatic determination or measurement or any recording of the claimed independent variables as previously explained. Additionally, Dombay is not concerned with temperature as an independent variable (as discussed above) and makes all measurements sample by sample. In this regard, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Appellant's disclosure. *In re Vaeck, supra.* That is not the case here since the reasons given for combining the references at page 5 of the Office Action are in line with Appellant's specification, and not found in the cited references. Thus, the differences between Tondre and Dombay are essential and parts of the secondary reference cannot be simply picked from. Further, none of these cited references contain any hint that would motivate a person skilled in the art to combine the disclosures or teachings therein due to such inconsistencies between the references. As said above, even if one of ordinary skill in the art attempts to combine such disclosures, the resulting combination would not be all features as recited in independent claims 1 and 7 of the present invention.

Furthermore, it is not possible to combine Hagan and Tondre in such a way that the objects of instantly pending claims 1 and 7 are achieved, since the method disclosed in Hagan to collect data is not at all the same as the digital methods of the present invention. The Examiner tries to use Dombay and Hagan as a complement to Tondre and Rouse by a piece-by-piece combination, where the pieces are taken out from its context. Even so it is not possible for the Examiner to show how to combine the pieces to achieve the objects defined in Claims 1 and 7 of the present invention.

Thus, Appellant respectfully submit that a *prima facie* case of obviousness has not been established with respect to any of the rejections. Further, it is not a matter of automating some known process in order to achieve the present invention. The present invention recites many features that are missing in each references, as well as the combinations thereof. In addition, a reading of each reference in its entirety shows that the requisite motivation and/or reasonable expectation of success are lacking. Accordingly, reconsideration and reversal of all rejections are respectfully requested.

The Examiner has completely failed and has not even attempted to point out any specific technical feature in the newly cited references which may affect the patentability of the present invention as claimed. The citations of these new references do not make the combination with Tondre or any other secondary references any more proper as asserted above and in the January 30 response.

Appellant further add that the assertion of automation is not novel is not applicable to the instant situation since the present invention uses a control program for concentration, a control program for temperature, and then the various data is collected, stored and converted into, e.g., the three-dimensional diagram. Additionally, the cited combinations of references do not disclose the use of the independent variables of temperature and concentration in combination with various dependent properties, and to further use such various date to attain, e.g., a three-dimensional diagram. Thus, it not simply an issue of automation considering the many features involved in the claimed invention and the citation of *In re Venner* is inapplicable to the instant rejections.

(xvi) Paragraphs 2, 3, 5 and 6 of the Office Action; Appellant's arguments misunderstood; improper hindsight reconstruction

Appellant also notes that Examiner's quotes of *In re Keller, In re Merck*, and *Ex parte Obiaya* at page 10 of the Office Action. Appellant traverses in that there have not been any arguments of references "individually". If anything, the Office Action contains the individual discussion of each reference at length, and then the references are somehow combined. Thus, the disclosures of each reference is reproduced without specifying the technical features which are believed pertinent in the judgment of patentability of the present invention as defined in the instant claims.

Further, it appears that Appellant's previous arguments have not been understood. It is clear in the January 30, 2006 Amendment that Appellant was relying on the deficiencies of each reference because the references have been improperly combined. Further, the statements in the Office Action at page 10 are assuming that the references could be properly combined in the first place. Appellant is traversing that the references could be properly combined in the first place. For instance, the references are inconsistent with the technology at hand including, as one example, it has not been properly established as to how one of ordinary skill in this art would reasonably expect to be successful or be motivated in referring to a reference directed to characterization of a metal surface (e.g., Hagan) in order to solve the problems as described by the Examiner (e.g., ability to map out an emulsion property). Thus, it appears that Appellant's remarks have not been considered in the context of satisfying all requirements for a prima facie case of obviousness (i.e., the requisite motivation) as they should be.

Appellant also notes the Examiner's conclusions of obviousness in the Office Action at page 6, last paragraph and page 8, second full paragraph (for each ground(s) of rejection in paragraphs 2 and 3, respectively). The Examiner also keeps referring to the issue of automation as combining the cited references. Effectively, these are too broad and dangerous simplifications. Most inventions are after their presentation easy to understand as well as the benefit of the invention. Therefore, it is normally easy to search in the literature for pieces of information and to put them together in a manner not suggested and to overlook under which circumstances the pieces of information were disclosed. It is not sufficient to be able to show that certain pieces of information could have been combined by a person skilled in the art. Even circumstances that speak against a combination have to be considered. The question is if a person skilled in the art (a person with no capacity to make patentable inventions) and with no knowledge of the actual invention would have found it obvious, guided by the disclosure in the references (if the references are properly referred to in the first place), to combine them in such a manner that all the necessary characteristics of the invention were revealed. If the references do not disclose all the necessary characteristics then no proper combination can be made. This is the instant situation. The Examiner has not taken this initial point of view, and instead much hindsight reconstruction has been applied.

Appellant also notes the lengthy discussions of the individual references, which includes many inconsistencies between the disclosures thereof. Further, one of ordinary skill in the art would not even consider many of the references in the same field of endeavor. Based on the disclosure of each and every one of the cited references, the rejections in paragraphs 2-3 of the Office Action are based on searches in literature for pieces of information and then assembled

together in a manner not suggested and even overlooks under which circumstances the pieces of information were disclosed. Accordingly, the instant rejections are improper and should be reversed.

Appellant also notes the contents of the previously filed Rule 132 Declarations as discussed below. The Declarations constitute evidence that the present invention solves a long-felt need and is enjoying commercial success.

Appellant also notes the citation of *In re Keller* at pages 13-14 of the Office Action. With regard to the cited secondary references, the Examiner considers the technical problem as being automation. However, it is unreasonable to phrase the problem in these terms. First, all of the secondary references are deficient other than the automation aspect, as well as some being in a non-analogous art with the primary reference and the present invention. Second, this approach does not take into account whatsoever of the specific technical problem which is clearly stated in the present specification. Third, considering the problem to be solved in the Examiner's terms implicitly includes a direction to the solution to the problem. This itself is unreasonable because the cited references ought to be considered without the benefit of improper hindsight reconstruction. *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) ("One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."). In the present circumstances, Appellant submit that it is much more appropriate to consider the problem to be solved as that phrased in the specification instead of the Examiner's conclusions (e.g., need for automation without a detailed explanation).

(xvii) Summary

Appellant respectfully submit that a *prima facie* case of obviousness has not been established for any of the appealed rejections. Tondre cannot be properly combined with Rouse or any other secondary reference for the (technical) reasons stated above (e.g., different methods with different aims and objectives; "obvious to try" rationale; non-analogous art; inoperability; impermissible hindsight reconstruction). Furthermore, there is no disclosure of all claimed features. Also, *In re Venner* is improperly cited and applied by the Examiner. Accordingly, Appellant respectfully requests the honorable Board to reverse all of the Examiner's rejections.

(C) Claims 1, 2, 4-8, 10-18: Rebutting all § 103(a) rejections for each ground(s) of rejection(s) by showing commercial success (a *Graham* factor and secondary consideration) and unexpected results

Appellant have submitted Declarations pursuant to 37 C.F.R. § 1.132, signed by the inventor Rolf Skold. The most recently filed Rule 132 Declarations were submitted filed on February 16, 2006 and August 25, 2006. Both of these Rule 132 Declarations are herein enclosed (executed on February 8, 2006 and July 18, 2006). The enclosed Rule 132 Declarations are evidence of the patentability of the claimed invention in that the present invention has enjoyed commercial success. In this regard, as stated in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966) and M.P.E.P. § 2141(I) ("Standard of Patentability to be Applied in Obviousness Rejections"), one of the four factual inquires that must be made in each and every case includes "(D) Evaluating evidence of secondary considerations" (Supreme Court stating: "Such secondary considerations as commercial success, long felt but unsolved needs,

failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy").

The reasons for submitting multiple Declarations are as follows.

In the February 16, 2006 reply, Appellants submitted the following explanation from page 3 of that response:

> The attached Rule 132 Declaration constitutes evidence of secondary considerations. In particular, paragraph 4 of the Declaration identifies the customers, wherein paragraph 5 details the reasons for the commercial success of the presently claimed invention. As can be seen in paragraph 5, the present invention enjoys commercial success due to its solutions for drawbacks in the art (e.g., quick and ready access to physical and chemical data over an extensive range of temperatures and concentrations that give rapid indications regarding temperature-concentration ranges of particular interest), its unexpected advantages (e.g., now the possibility of quantitatively identifying critical transition concentrations and temperatures and other characteristics on an extensive temperature-composition surface simultaneously in the same vessel) and its convenience (e.g., quick visualization of data in three dimensional graphs that adds to the ease and speed of data examination and information transfer). Further, Applicant respectfully refers the Examiner to the customers of the present invention in paragraph 4 (which includes Procter & Gamble).

However, the Examiner questioned the February 16, 2006 Declaration because: "there is not sufficient information given about how the instruments were placed with the respective companies and institution to determine if the placement of the instruments are actually commercial success or just research agreements with industry that are designed to help with the development of the instrument. The interactions between the Appellant and the research community are very relevant to commercial success." Also stated in paragraph 5 of the Office Action, the Examiner appears to separate (i) commercial

success and (ii) entering a research agreement with an industry that is designed to help with the development of the industry.

In response to the Examiner's comments, Appellant submitted a second Rule 132 Declaration on August 4, 2006.[3] This second Rule 132 Declaration even contained invoices showing actual sales, and not the situation of merely entering sales agreements as asserted by the Examiner. The following explanation was given at pages 7-8 of the August 4 reply:

> Second, in response to the Examiner's comments, Applicant respectfully submits that the Rule 132 Declaration attached to this reply is strong evidence of patentability and/or constitutes evidence of secondary considerations. Paragraph 4 shows large and well-known industry-type customers, such as Procter and Gamble. The attached invoices are objective evidence of the commercial success that the claimed invention is enjoying and is not considered as simply entering into a research agreement. Paragraph 5 of the attached Rule 132 Declaration details the reasons for the commercial success of the presently claimed invention. It is thus believed that this Declaration answers the Examiner's inquiries.

Further, Appellant points to the previous Rule 132 Declaration as cumulative support of the evidence of patentability for the instant application. Again, paragraph 4 of the Declaration identifies the customers involved in the commercial success and paragraph 5 details the reasons for the commercial success of the presently claimed invention. Further, the present invention enjoys commercial success due to its solutions for drawbacks in the art (e.g., quick and ready access to physical and chemical data over an extensive range of temperatures and concentrations that give rapid indications regarding temperature-concentration ranges of particular interest; see paragraph 5 of the Rule 132 Declaration), its unexpected advantages (e.g., now the possibility of

[3]A third Rule 132 Declaration was filed on August 25, 2006. Due to a clerical error, two pages of the Declaration filed on August 4, 2006, were not attached to the Declaration when submitted with the reply. Accordingly, Appellant submitted the complete copy of the Declaration (4 pages in total) on August 25.

quantitatively identifying critical transition concentrations and temperatures and other characteristics on an extensive temperature-composition surface simultaneously in the same vessel) and its convenience (e.g., quick visualization of data in three dimensional graphs that adds to the ease and speed of data examination and information transfer).

> Accordingly, Applicant respectfully submits that the present invention has achieved unexpected results as well as commercial success which rebut any asserted prima facie case of obviousness. *See In re Corkill*, 711 F.2d 1496, 226 USPQ (BNA) 1005 (Fed. Cir. 1985); *see also In re Papesch*, 315 F.2d 381, 137 USPQ (BNA) 43 (CCPA 1963); *In re Wiechert*, 370 F.2d 927, 152 USPQ (BNA) 247 (CCPA 1967). Further, Applicant notes M.P.E.P. § 2141, the section entitled "Objective Evidence Must be Considered". Accordingly, the objective evidence of the Rule 132 Declaration must be considered. That objective evidence also includes the attached invoices. Applicant also notes M.P.E.P. § 2144.09 (see section entitled "*Prima Facie* Case Rebuttable By Evidence of Superior or Unexpected Results"), which states that any rejection under 35 U.S.C. § 103(a) may be rebutted by a sufficient showing of unexpected results for the present invention.

As can be seen, Appellant has taken substantial steps to show the patentabilty of the present invention. However, in the Final Office Action, the Examiner still questions the commercial success of the present invention. This is despite even the Declarations showing large and well-known industry-type customers, such as Procter and Gamble, as well as attaching objective evidence in the form of invoices of actual sales. Specifically, as stated in paragraph 5 at pages 8-9 of the Final Office Action, the Examiner states "**1)** before actual marketing begins, it is difficult to say any commercial success has been shown, **2)** there is no information about what type of interactions with the research community prompted the placement of the three instruments and **3)** there is no probative evidence beyond applicant's statement that the reasons for the lease/purchase are as stated."

As for contention **1)**, Appellant notes that the actual sales show actual demand of the claimed invention. It is not clear as to why marketing is even necessary. The Examiner goes on to say no market analysis has been done, and that there is no statement concerning capturing a portion of the potential market. Appellant also questions if the Examiner is an economist expert, or is somehow saying the sales did not actually take place. The sale of the devices as shown in the Rule 132 Declarations has been conducted with knowledge of companies having a need for the device. The claimed instruments have been sold, as evidenced by the invoices as attached to the most recently submitted Rule 132 Declaration. Does the Examiner wish to have a full market report concerning actual sales, supply and demand, etc., which may take years to develop?

As for contention **2)** it is not clear as to why this is relevant to show commercial success. Also, it should be observed that the inventor enjoys small entity status and enjoys very limited resources. There should not be a bias against those inventors with limited resources. Appellant notes that statements of commercial success are to demonstrate how an invention differs from the prior art.

As for contention **3)**, it is not clear to what the Examiner is even saying. Appellant attempts to answer this concern as follows. The first series of devices has been sold on a commercial base without any discounts. The price was about $75,000. Since the devices were favorable received, a second series of devices are now under production. In fact, Appellant even notes that recently a new device according to the invention has been sold to Procter and Gamble, Newcastle, England. This recent sale further supports the patentability of the present invention.

Therefore, Appellant respectfully submits that the Rule 132 Declaration establishes the patentability of the instant claims. In particular, the present invention enjoys commercial success

due to its solutions for drawbacks in the art (e.g., quick and ready access to physical and chemical data over an extensive range of temperatures and concentrations that give rapid indications regarding temperature-concentration ranges of particular interest), its unexpected advantages (e.g., now the possibility of quantitatively identifying critical transition concentrations and temperatures and other characteristics on an extensive temperature-composition surface simultaneously in the same vessel) and its convenience (e.g., quick visualization of data in three dimensional graphs that adds to the ease and speed of data examination and information transfer). The present invention obviously solves a long-felt need (see the attached Declaration with the invoices).

Appellant respectfully requests the honorable Board to consider the contents of the Rule 132 Declarations along with the remarks herein as sufficiently overcoming and rebutting the rejections under 35 U.S.C. § 103(a). It is believed that these rejections are in error and should be reversed.

(D) Classic Piecemeal Prosecution

Appellant respectfully requests the Board to question the validity of so many rejections present in the outstanding Office Action. Appellant believes that the present rejections are unwarranted. In addition, the issues of unpatentability increase with issuance of the next Office Action, instead of decreasing as usually the case when a typical patent application is being prosecuted. The Examiner should have conducted a thorough search for all claimed features in any of the previous Office Actions, wherein the Examiner is not advancing prosecution and is conducting improper "piecemeal examination." M.P.E.P. §§ 707.07(g) and 707.07(a). A

summary of the history of this case is provided by Appellant in the response dated August 3, 2006. The history of this case includes a request from the Group Director of Art Unit 1700 (Jacqueline Stone) to review the lengthy history of the present application and monitor the progress of this application, as well as how this is the third Appeal from Appellant, and the two previous Appeals were terminated by the Examiner by reopening prosecution to form new rejections.

Appellant also notes M.P.E.P. § 2144.08(III) ("RECONSIDER ALL EVIDENCE AND CLEARLY COMMUNICATE FINDINGS AND CONCLUSIONS"):

> A determination under 35 U.S.C. § 103 should rest on all the evidence and should not be influenced by any earlier conclusion. *See, e.g., Piasecki*, 745 F.2d at 1472-73, 223 USPQ at 788; *In re Eli Lilly & Co.*, 902 F.2d 943, 945, 14 USPQ2d 1741, 1743 (Fed. Cir. 1990). Thus, once the applicant has presented rebuttal evidence, Office personnel should reconsider any initial obviousness determination in view of the entire record. *See, e.g., Piasecki*, 745 F.2d at 1472, 223 USPQ at 788; Eli Lilly, 902 F.2d at 945, 14 USPQ2d at 1743. All the proposed rejections and their bases should be reviewed to confirm their correctness. Only then should any rejection be imposed in an Office action. The Office action should clearly communicate the Office's findings and conclusions, articulating how the conclusions are supported by the findings.
>
> Where applicable, the findings should clearly articulate which portions of the reference support any rejection. Explicit findings on motivation or suggestion to select the claimed invention should also be articulated in order to support a 35 U.S.C. 103 ground of rejection. *Dillon*, 919 F.2d at 693, 16 USPQ2d at 1901; *In re Mills*, 916 F.2d 680, 683, 16 USPQ2d 1430, 1433 (Fed. Cir. 1990). Conclusory statements of similarity or motivation, without any articulated rationale or evidentiary support, do not constitute sufficient factual findings.

In the instant situation, the Examiner's findings have not clearly articulated which portions of the reference support any rejection, the determinations under 35 U.S.C. § 103 have not rested on all the evidence and/or the determinations have been influenced by any earlier conclusions from the previous Office Actions.

(E) Summary

In summary, Appellant respectfully submits that the Examiner has failed to satisfy all three criteria that are needed to form a *prima facie* case of obviousness. Appellant's position is especially true with respect to the requisite reasonable expectation of success and requisite motivation, wherein Appellant has explained how one of ordinary skill in the art would not have reasonably expected to be successful or be motivated in combining the disclosures in the cited references of Tondre and the various other secondary references. Further, the commercial success of record constitutes objective evidence that rebuts the § 103(a) rejections.

For the reasons advanced above, it is respectfully submitted that all claims on appeal in this application are allowable. Accordingly, favorable consideration and reversal by the Honorable Board of Patent Appeals and Interferences of the Examiner's rejections under 35 U.S.C. § 103(a) of claims 1, 2, 4-8 and 10-18 are respectfully solicited. The rejections of the Examiner are without basis, and should be reversed.

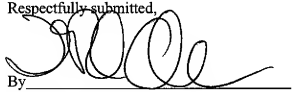
VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto as **Appendix A**. As indicated above, the claims in **Appendix A** do include the amendments filed by Appellant on January 30, 2006 (the most recent Office Action issued on October 31, 2006).

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Dated: April 30, 2007

Respectfully submitted,



By_____

D. Richard Anderson
Registration No.: 40,439
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road, Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Appellant

Attachments:
Appendices A-C

APPENDIX A

Claims Involved in the Appeal of Application Serial No. 09/381,828:

1. An automatic method for the characterisation of physical and/or chemical properties of a liquid, said method comprising:

1) measuring at least one dependent physical and/or chemical property of a liquid in a measuring cell as a function of temperature and a component concentration as independent variables,

2) determining by calculation the values for the component concentration in the measuring cell based on data from a control program for the change of component concentration and determining the temperatures by calculation from a temperature control program or by measurements;

3) changing the value of the component concentration in the measuring cell by adding in one step or gradually a predetermined amount of another liquid containing a different component concentration into the measuring cell according to a component concentration control program, and performing a representative number of measurements of the dependent physical or chemical property in the measuring cell within a whole selected temperature range within the predetermined change of the component concentration,

4) repeating the procedures above at desired component concentrations and temperatures in order to obtain a wanted number of values;

5) the values obtained for the dependent properties are combined with the values for the independent properties to measuring points and stored electronically in a computer; and

6) coordinating and visualizing the electronically stored measuring points in a three-dimensional diagram.

2. The method according to Claim 1, wherein a series of measurements are done under rising temperature, and the following series of measurements are done under decreasing temperatures.

4. The method according to Claim 1, wherein the changes in concentration and/or the temperature are controlled by a program in the computer.

5. The method according to Claim 1, wherein the temperature of each measuring point is measured simultaneously with the physical and/or chemical property.

6. The method according to Claim 1, wherein the predetermined amount of the another liquid added to the liquid amends the concentration of the component in the liquid with 0.01-5 % by weight.

7. A device for the characterisation of the physical and/or chemical properties of a liquid, wherein said device comprises:

a) a measuring cell (1) provided with

i) an equipment (2) for the homogenisation of a liquid,

ii) at least two control equipment (3, 17), which comprise or are attached to control programs for changing of the two independent variables, component concentration and temperature, in a predetermined manner, the control equipment (3) of the component concentration comprising a dosage organ for the addition of another liquid containing a different component concentration to the measuring cell,

iii) at least one measuring organ (9, 13, 14) for the determination of at least one dependent physical and/or chemical property of the liquid, and

iv) optionally a measuring organ (15) for the determination of the temperature,

b) at least one computer (5) for

i) the reception and storage of data relating to the dependent and independent variables via at least one electronic circuit (11', 12', 13', 14', 15') and the calculation of at least the component concentration from data obtained from the control program and

ii) compilation of the received and calculated values into three-dimensional measuring points, and

c) equipment (16) for visualisation of the measuring points stored in the computer in a three-dimensional diagram.

8. The device according to Claim 7, wherein the equipment for the control of the temperature of the fluid comprises a jacket (17) or a heating coil for the cooling and/or heating by means of a heat transfer medium, whereby cooling and heating is controlled by a program in the computer (5).

10. The device according to Claim 7, wherein control programs are included in the computer (5).

11. The method according to Claim 1, wherein a series of measurements are done under decreasing temperature, and the following series of measurements are done under rising temperatures.

12. The method according to Claim 1, wherein the at least one dependent physical and/or chemical property of the liquid that is measured in the measuring cell is selected from the group consisting of pH, conductivity, turbidity, optical activity and viscosity.

13. The method according to Claim 1, wherein the dependent physical and/or chemical properties of the liquid that are measured in the measuring cell is turbidity and one or more selected from the group consisting of pH, conductivity, optical activity and viscosity.

14. The method according to Claim 1, wherein the concentration is gradually changed to change the value of the component concentration.

15. The method according to Claim 1, wherein the temperature is continuously changed.

16. The method according to Claim 13, wherein the temperature is continuously changed.

17. The device according to Claim 7, wherein said iii) at least one measuring organ is a conductivity meter or pH meter.

18. The method according to Claim 1, wherein the concentration is gradually changed to change the value of the component concentration and the temperature is continuously changed.

APPENDIX B

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

APPENDIX C

No related proceedings are referenced in II. above, hence copies of decisions in related proceedings are not provided.